Workshop L

Natural Gas Outlook …
A Macro Overview & Deeper Dive into Ohio and What to Expect Going Forward

Tuesday, February 19, 2019
1:45 p.m. to 3 p.m.
Todd A. Snitchler, Vice President, Market Development
American Petroleum Institute
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snitchlert@api.org

Todd Snitchler is the vice president of Market Development at API. This department works with industry, government, and customer stakeholders to promote increased demand for and continued availability of our nation’s abundant and clean natural gas resources.

Prior to joining API, Mr. Snitchler was a principal for Vorys Advisors, LLC in Ohio where he led the government affairs efforts in the energy and utility space. He organized the firm’s first-ever sponsored educational seminar for policy makers and industry representatives and established strong relationships in Ohio and nationally with competitive suppliers and independent power producers.

Mr. Snitchler previously served as chairman of both the Public Utilities Commission and the Power Siting Board of Ohio, and was elected twice to represent the 50th House District in Stark County.

Mr. Snitchler has published on numerous topics including environmental regulations and cyber issues; electricity deregulation difficulties; and the role of the federal Environmental Protection Agency. Mr. Snitchler received his J.D. from the University of Akron School of Law and his B.A. from Grove City College.

Tim Bigler, Senior Market Strategist
Direct Energy Business Marketing
194 Wood Ave. S. Flr. 2, Iselin, NJ 08830-2710
732-516-7191
timothy.bigler@directenergy.com

Tim have worked in the energy sector for 35 years and his career began in the oil sector but progressed to natural gas when that market was deregulated in 1992. He has participated in the physical, futures and derivatives markets.

His current role encompasses the dissemination of market intelligence related to primarily natural gas, electricity markets and periodic involvement related to regulatory and renewable data.

He interacts directly/indirectly with sales, operations, marketing and most importantly Direct Energy customers.
Biographical Information

David J. Sopko, Sales Manager, Ohio Valley Region
Direct Energy Business
5200 Upper Metro Pl. Ste. 170, Dublin, OH 43017-5378
614-764-5782
david.sopko@directenergy.com

Dave has been the manager of commercial and industrial sales for the Midwest region for Direct Energy Business LLC since January 2014. Prior experience includes Sales Manager for Hess Corporation and Director of Commodity Services for Delta Energy Services. He has a Bachelor of Science degree in Finance from The Ohio State University.

Dan Dishno, Vice President, Supply
IGS Energy
6100 Emerald Pkwy., Dublin OH 43016
800-928-0636
Dan.Dishno@igs.com

Dan oversees IGS’ energy supply and risk department. Through transparency and exceptional customer service, his teams manage market risk, provide competitive pricing, and deliver reliable energy to serve our customers’ needs. His team’s expertise and commitment will help IGS build a meaningful energy future.

Prior to joining IGS, Dan served in a variety of capacities for 13 years at NiSource, one of the largest fully-regulated utility companies in the U.S. He was responsible for managing natural gas assets as a utility buyer for NIPSCO, an Indiana-based energy distribution company as well as working in an unregulated capacity at Energy USA.

When he’s not in the office, Dan loves spending time with his wife and two kids. They enjoy playing as much golf as possible in Ohio’s unpredictable weather and traveling to Florida to spend time at the beach when it gets too cold. Dan holds a bachelor’s degree in Business from Ball State and a master’s degree in Finance from Indiana University.
Natural gas is more competitive than ever

Todd Snitchler
Vice President, Market Development
American Petroleum Institute

Manufacturer’s Education Council
Energy Management Conference
February 19, 2019

Updated February 2019
Key messages

- The supply potential of natural gas continues to grow – more than 150 years worth of technically recoverable North American resources.

- Contrary to the representations of some, natural gas prices have fallen and price volatility was cut in half by the U.S. energy revolution.

- Natural gas continues to grow in its share of the power generation market. Generation attributes suggest it will also continue to support the increased renewables coming on to the grid as well.

- In 2019, U.S. LNG is poised to nearly double and become a leading global supplier, with minimal impacts to prices domestically.

- Infrastructure remains crucial to the development of significant natural gas & oil resources in shale basins around the country.
North America’s technically recoverable resources have continued to increase as technology has improved.

2016 oil and gas resources recoverable with current technology:

- **U.S. Lower 48**: 171.4 Billion Bbl, 864 to 1,773 Tcf
- **Pacific OCS**: 19.6 Billion Bbl, 147.1 Tcf
- **AK OCS**: 10.2 Billion Bbl, 16.1 Tcf
- **GOM OCS**: 48.5 Billion Bbl, 628.2 Tcf
- **Atlantic OCS**: 32.1 Billion Bbl, 147.1 Tcf

**2016 Resources/Production Ratio**

- **Oil**: 66 years
- **Natural gas**: 153 years

**2010 Resources/Production Ratio**

- **Oil**: 48 years
- **Natural gas**: 108 years

Sources: USGS, BOEM, PGC, NRCAN, EIA
The U.S. energy revolution significantly reduced natural gas price volatility.

Although natural gas prices are highly seasonal, price volatility* from 2010 to 2018 fell by half relative to that of the period from 1997 to 2009.

Daily Henry Hub Natural Gas Spot Prices

Dollars per million Btu

* source: EIA daily spot prices at Henry Hub. Price volatility measured as standard deviation relative to average prices.
Where enabled by pipeline connectivity, the U.S. energy revolution has generally lowered prices

- In 2010, before the energy revolution, prices at most natural gas hubs were greater than those at Henry Hub, Louisiana.

- As Pennsylvania and Ohio became major gas producers, prices fell across the eastern U.S. except in New England, which largely failed to expand its pipeline infrastructure.

Natural Gas Spot Price Differences from Henry Hub
(annual averages)

- Chicago
- Florida Gas Transmission Zone 2
- Rockies Express Pipeline (East) into Midwestern
- Dominion South Point
- Dawn
- Algonquin

- Paid a premium above Henry Hub
- Received a discount below Henry Hub

A higher premium due to a lack of infrastructure

Source: Bloomberg
Enbridge placed the NEXUS pipeline into service following FERC approval in October
- NEXUS runs 225 miles from eastern Ohio to southeastern Michigan
- FERC authorized it to transport 0.97 bcf/d until it is approved to run at capacity (1.5 bcf/d)
- Michigan consumed 2.5 bcf/d through October 2018 (EIA)

In October, Michigan’s natural gas price differential versus Henry Hub fell to $0.05 per mmBtu from as much as $1.00 per mmBtu in February

Michigan natural gas price differential
(Michigan CityGate versus Henry Hub)
Dollars per million Btu ($/mmBtu)
Drilling specifically for natural gas has become increasingly predominant and cost-effective in the U.S.

- With strong productivity gains, the burden to keep the energy renaissance going shifts to the market potential for natural gas demand

**U.S. gas production by play type**

- **Associated gas from liquids plays**
- **Appalachia**
- **Other dry gas plays**

Source: EIA Drilling Productivity Report

**Breakeven prices for selected gas plays**

<table>
<thead>
<tr>
<th>Play</th>
<th>$/MMBtu</th>
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<tr>
<td>Haynesville</td>
<td>2</td>
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<td>Appalachia - SW PA</td>
<td>2</td>
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<td>Appalachia - NE PA</td>
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<td>Appalachia - OH</td>
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*Half cycle breakevens assuming 10% discount factor and play-specific costs

Source: BTU Analytics (July 2018)
Electricity is important to the U.S. energy mix, and natural gas has delivered the greatest benefits

- More than 40% of U.S. primary energy is used for electricity generation
- Natural gas has increased to 32% of U.S. electricity net generation from 19% in 2005

**U.S. shares of primary energy**

![Bar chart showing the percentage distribution of primary energy across different sectors for 2016.](source: EIA SEDS (2018))

**U.S. electricity net generation**

![Line chart showing the million megawatt hours of electricity generation from 2005 to 2017 for different sources.](source: EIA)
### Brattle study: Diversity of reliability attributes – a key component of the modern grid

<table>
<thead>
<tr>
<th>Nat Gas - CC/CC/PC/Rice/Aeroderivative</th>
<th>Coal</th>
<th>Nuclear</th>
<th>Wind</th>
<th>Solar</th>
<th>Pondage Hydro</th>
<th>Run of River Hydro</th>
<th>Demand Response</th>
<th>Storage</th>
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<td>Generation</td>
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<td>Minimum Load Level</td>
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<td>Black Start Capability</td>
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<td>Storage Capability</td>
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**Legend**
- **Green**: Relatively Advantageous
- **Yellow**: Neutral
- **Red**: Relatively Disadvantaged
- **White**: N/A
Increased U.S. natural gas use and energy efficiencies have reduced CO₂ emissions as energy demand has grown

- Since 2005, total energy-related CO₂ emissions declined faster than total energy consumption, due largely to natural gas substitution for coal in power.
- As energy consumption grows in the future, energy efficiency improvements and increased renewables and natural gas use should restrain CO₂ emissions.

source: EIA AEO (2018)
Between 2018 and 2040, EIA’s high oil & gas resource and technology case suggests a 70% production increase with steady prices at $3.00/MMBtu.

**Natural gas spot prices at Henry Hub**

**Dry natural gas production**

Billion cubic feet per day (Bcf/d)

Source: EIA AEO(2017, 2018)
With globalization, natural gas markets could more than double by 2040

Global natural gas by source

LNG exports

LNG imports

BCFD

source: BP (2018)
EIA’s estimation of U.S. natural gas markets hinges on LNG exports and to a lesser extent industrial and power growth

Without the healthy evolution of LNG markets and continued free trade, upstream U.S. natural gas development could be stymied

**U.S. domestic natural gas consumption plus exports**

**Reference case**

Billion cubic feet per day (Bcf/d)

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential / Commercial and all other</th>
<th>Electricity generation</th>
<th>Industrial</th>
<th>Net exports</th>
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</thead>
<tbody>
<tr>
<td>2000</td>
<td>50</td>
<td>60</td>
<td>70</td>
<td>10</td>
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<td>2010</td>
<td>60</td>
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<td>80</td>
<td>15</td>
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<td>2020</td>
<td>70</td>
<td>80</td>
<td>90</td>
<td>20</td>
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<tr>
<td>2030</td>
<td>80</td>
<td>90</td>
<td>100</td>
<td>25</td>
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<tr>
<td>2040</td>
<td>90</td>
<td>100</td>
<td>110</td>
<td>30</td>
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</table>

**High Oil & Gas Resource and Technology**

<table>
<thead>
<tr>
<th>Year</th>
<th>Residential / Commercial and all other</th>
<th>Electricity generation</th>
<th>Industrial</th>
<th>Net exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>55</td>
<td>65</td>
<td>75</td>
<td>15</td>
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<td>2010</td>
<td>65</td>
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<td>85</td>
<td>20</td>
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<tr>
<td>2020</td>
<td>75</td>
<td>85</td>
<td>95</td>
<td>25</td>
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<tr>
<td>2030</td>
<td>85</td>
<td>95</td>
<td>105</td>
<td>30</td>
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<tr>
<td>2040</td>
<td>95</td>
<td>105</td>
<td>115</td>
<td>35</td>
</tr>
</tbody>
</table>

**2018 to 2040 changes (Bcf/d)**

<table>
<thead>
<tr>
<th>Case</th>
<th>2018</th>
<th>2020</th>
<th>2030</th>
<th>2040</th>
</tr>
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<tbody>
<tr>
<td>Reference</td>
<td>18.8</td>
<td>29.2</td>
<td>15.7</td>
<td>9.8</td>
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<tr>
<td>High</td>
<td>3.1</td>
<td>15.7</td>
<td>7.5</td>
<td>9.8</td>
</tr>
<tr>
<td>Industrial</td>
<td>0.1</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: EIA AEO (2018)
DISCUSSION POINTS

Ohio NG
- Slower production growth
- Pipelines relieve constraints
- Oil prices can impact

Ohio NG Demand
- Power sector = Exponential Growth
- Industrial back to 10Y highs?

Ohio NG/MW $ 
- NG Prices Sustainable?
- Low NG $$$ = Low MW $$$
Ohio Natural Gas Marked Production MMcf

EIA; FOR INFORMATIONAL PURPOSES ONLY
Refining District Appalachian No. 1 Field Production of Natural Gas Liquids MBBL/D
NORTH EXPANSIONS – MOVING TO DEMAND

2015-2018 PIPELINE EXPANSION PROJECTS

S&P GLOBAL PLATTS; FOR INFORMATIONAL PURPOSES ONLY
“PRACTICE STRICT CAPITAL DISCIPLINE…”

### UPDATE ON 2018 STRATEGY AND OPERATIONAL PLANS

<table>
<thead>
<tr>
<th>2018 INITIATIVES</th>
<th>THIRD QUARTER 2018 UPDATE</th>
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<tbody>
<tr>
<td><strong>PRACTICE STRICT CAPITAL DISCIPLINE AND FUND 2018 CAPITAL PROGRAM WITHIN CASH FLOW</strong></td>
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<tr>
<td>— 2018 D&amp;C capital expenditures of $685 million and non-D&amp;C capital expenditures of $130 million</td>
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<tr>
<td>— Generated significant adjusted EBITDA during the nine-months ended September 30, totaling approximately $700.3 million</td>
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<td>— Reiterated full-year 2018 total capital program will be funded within cash flow</td>
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<tr>
<td><strong>DELIVER STRONG ANNUAL PRODUCTION GROWTH WITHIN CASH FLOW</strong></td>
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<tr>
<td>— Q2 2018 production averaged 1.43 Bcfepd, an increase of ~7% over second quarter 2018 and ~19% year-over-year</td>
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<tr>
<td>— Driven by strong resource performance year-to-date, increased full-year 2018 production guidance to 1.36 to 1.37 Bcfepd, an increase of approximately 25% to 26% over full-year 2017</td>
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<tr>
<td><strong>MAINTAIN A STRONG BALANCE SHEET AND FINANCIAL POSITION</strong></td>
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<tr>
<td>— As of September 30, 2018, net-debt-to-TTM-EBITDA ratio decreased to 2.14 times and based on projected cash flows from the remainder of the year, at current strip prices forecasted leverage ratio at year-end 2018 will be at or below 2 times</td>
<td></td>
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<tr>
<td>— Large hedge position providing certainty of cash flows</td>
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<tr>
<td><strong>REALIZE VALUE WITH AVAILABLE LIQUIDITY</strong></td>
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<tr>
<td>— Authorized to acquire up to $200 million of outstanding common stock during 2018 and approximately $90 million remains under the current authorization</td>
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<tr>
<td>— Reduced amount outstanding on Gulfport’s revolving credit facility to $60 million and held $125 million in cash on the balance sheet</td>
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<tr>
<td>— Will continue to consider all options, including additional share repurchases and debt reduction, remaining disciplined and demonstrating the Company’s commitment to shareholders with every dollar invested</td>
<td></td>
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GULFPORT; FOR INFORMATIONAL PURPOSES ONLY
NG FIRED GENERATION GROWTH > IN THE EAST

Figure 6.1.C. Utility-Scale Generating Units Planned to Come Online from December 2018 to November 2019

OHIO NG FIRED GENERATION GROWTH > IN THE EAST

Ohio Power Siting Board

OPS B Gas Generation Case Status
As of October 12, 2018

NOTES: Facility locations are provided by applicants. Gas and construction status is determined by the case filings. The capacity shown is the highest nameplate capacity of the approved units in the original case and any amendments. Map produced on October 12, 2018.

OPS B; FOR INFORMATIONAL PURPOSES ONLY
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Ohio NG
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Ohio Natural Gas Deliveries to Electric Power Consumers MMcf

EIA; FOR INFORMATIONAL PURPOSES ONLY
OH INDUSTRIAL NG DEMAND – BACK TO 10Y HIGHS?

Ohio Natural Gas Industrial Consumption MMcf

EIA; FOR INFORMATIONAL PURPOSES ONLY
DISCUSSION POINTS

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NYMEX NG PRICES – DIMINISHED “RISK” PREMIUM

WELL…AT LEAST UNTIL 05/2021

SUSTAINABLE?
OHIO NG PRICES – DIMINISHED “RISK” PREMIUM

Bloomberg.; FOR INFORMATIONAL PURPOSES ONLY
OHIO MW PRICES – FOLLOW NG

Forward Price History

Selected ISO
PJM

Selected Price Point
AD HUB

Historical Pricing Analysis (Around the Clock)

Price ($/MMBtu)


SUMMARY

• NG SUPPLY GAINS MAY BE ANCHORED BY “FINANCIAL DISCIPLINE”
• PIPELINES MOVING GAS TO DEMAND
• NG DEMAND COULD SURPRISE TO THE UPSIDE
• $/MWh – WEATHER, CAPACITY & TRANSMISSION RISKS